45-DAY EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF THE STATE FIRE MARSHAL

REGARDING PROPOSED CHANGES TO
2016 CALIFORNIA RESIDENTIAL CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2.5

The Office of the State Fire Marshal (OSFM) proposes to make necessary changes to the 2016 edition of the California Residential Code (CRC), based on the 2015 International Residential Code (IRC) model code. The OSFM further proposes to:

• Adopt necessary amendments to the model code;
• Repeal amendments to the model code that are no longer necessary.

LEGEND FOR EXPRESS TERMS

1. Existing California amendments or code language being modified are in italics when they appear in the model code text: All such language appears in *italics*, modified language is <u>underlined.</u>
2. New California amendments: All such language appears <u>*underlined and in italics*</u>.
3. Repealed text: All such language appears in ~~strikeout~~.

<u>[Item 1. Multipurpose Residential Fire Sprinkler Systems clarification and modifications.]</u>

***R313.3.5* Water supply.** The water supply shall provide not less than the required design flow rate for sprinklers in accordance with Section *R313.3.4.2* at a pressure not less than that used to comply with Section *R313.3.6*. *Where a water supply serves both domestic and fire sprinkler systems, 5 gpm (19 L/min) shall be added to the sprinkler system demand at the point where the systems are connected, to determine the size of common piping and the size of the total water supply requirements where no provision is made to prevent flow into the domestic water system upon operation of a sprinkler. <u>For multipurpose piping systems, the 5 gpm (19 L/min) demand shall be added at the domestic connection nearest the design area. This demand may be split between two domestic connections at 2.5 gpm (10 L/min) each.</u>*

[Chapter 44 – Referenced Standards]

****NFPA 13D, Amended Sections as follows:***

…

Add new Section 6.2.4 to read as follows:

6.2.4 *Where a water supply serves both domestic and fire sprinkler systems, 5 gpm (19 L/min)*

shall be added to the sprinkler system demand at the point where the systems are connected, to determine the size of common piping and the size of the total water supply requirements where no provision is made to prevent flow into the domestic water system upon operation of a sprinkler. For multipurpose piping systems, the 5 gpm (19 L/min) demand shall be added at the domestic connection nearest the design area. This demand may be split between two domestic connections at 2.5 gpm (10 L/min) each.

Notation
Authority: Health and Safety Code Sections 13108, 13108.5, 13114, 13143, 13146, 13210, 13211, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2

[Item 2. Stand-alone Pump and Tanks in residential fire sprinklers clarification and modifications.]

R313.3.5.2 **Required capacity.** The water supply shall have the capacity to provide the required design flow rate for sprinklers for a period of time as follows:
1. Seven minutes for dwelling units one story in height and less than 2,000 square feet (186 m2) in area. *For the purpose of determining the area of the dwelling unit, the area of attached garages and attached open carports, porches, balconies and patios shall not be included.*
2. Ten minutes for dwelling units two or more stories in height or equal to or greater than 2,000 square feet (186 m2) in area. *For the purpose of determining the area of the dwelling unit, the area of attached garages and attached open carports, porches, balconies, and patios shall not be included.*

R313.3.5.2.1 Where a well system, a water supply tank system, a pump, or a combination thereof, is used, *the configuration for the system shall be one of the following:*

1. tThe water supply shall serve both domestic and fire sprinkler systems. Any combination of well capacity and tank storage shall be permitted to meet the capacity requirement.

2. A stand-alone tank is permitted if the following conditions are met:
2.1 The pump shall be connected to a 220 volt circuit breaker shared with a common house hold appliance (E.g. range, oven, dryer),
2.2 The pump shall be a stainless steel 240 volt pump,
2.3 A valve shall be provided to exercise the pump. The discharge of the exercise valve shall be piped to the tank, and
2.4 A sign shall be provided stating "Valve must be opened monthly for 5 minutes."
2.5 A means for automatically refilling the tank level, so that the tank capacity will meet the required water supply duration in minutes shall be provided.

[Chapter 44 – Referenced Standards]

NFPA 13D, Amended Sections as follows:

Revise Section 6.2.2 to read as follows:
The following proposed code change would be reflected in the California Building Code (Chapter 35), California Residential Code (Chapter 44), and California Fire Code (Chapter 80), relating to the referenced standard NFPA 13D, 2016 Edition.

6.2.2 Where a *well,* pump, tank *or combination thereof* is the source of supply for a fire sprinkler system, *the configuration for the system shall be one of the following:*

(1) ~~the~~The water supply shall serve both domestic and fire sprinkler systems, ~~and~~ the following shall be met
(~~1~~a) A test connection shall be provided downstream of the pump that creates a flow of water equal to the smallest sprinkler on the system. The connection shall return water to the tank.
(~~2~~b) Any disconnecting means for the pump shall be approved.
(~~3~~c) A method for refilling the tank shall be piped to the tank.
(~~4~~d) A method of seeing the water level in the tank shall be provided without having to open the tank.
(~~5~~e) The pump shall not be permitted to sit directly on the floor.

(2) A stand-alone tank is permitted if the following conditions are met:
(a) The pump shall be connected to a 220 volt circuit breaker shared with a common house hold appliance (E.g. range, oven, dryer),
(b) The pump shall be a stainless steel 240 volt pump,
(c) A valve shall be provided to exercise the pump. The discharge of the exercise valve shall drain to the tank, and
(d) A sign shall be provided stating "Valve must be opened monthly for 5 minutes."
(e) A means for automatically refilling the tank level, so that the tank capacity will meet the required water supply duration in minutes shall be provided.
(f) A test connection shall be provided downstream of the pump that creates a flow of water equal to the smallest sprinkler on the system. The connection may return water to the tank.
(g) Any disconnecting means for the pump shall be approved.
(h) A method for refilling the tank shall be piped to the tank.
(i) A method of seeing the water level in the tank shall be provided without having to open the tank.
(j) The pump shall not be permitted to sit directly on the floor.

Notation
Authority: Health and Safety Code Sections 13108, 13108.5, 13114, 13143, 13146, 13210, 13211, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2

[Item 3. Skylights in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

SECTION R337.8
EXTERIOR WINDOWS, SKYLIGHTS AND DOORS

R337.8.2 Exterior glazing. *The following exterior glazing materials and/or assemblies shall comply with this section:*
1. Exterior windows
2. Exterior glazed doors
3. Glazed openings within exterior doors
4. Glazed openings within exterior garage doors
5. Exterior structural glass veneer
6. Skylights

R337.8.2.1 Exterior windows, skylights and exterior glazed door assembly requirements. *Exterior windows, skylights and exterior glazed door assemblies shall comply with one of the following requirements:*
1. Be constructed of multipane glazing with a minimum of one pane meeting the requirements of Section 2406 Safety Glazing, or
2. Be constructed of glass block units, or
3. Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or
4. Be tested to meet the performance requirements of SFM Standard 12-7A-2

Notation
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13108.5, 13114, 13143, 13146, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2

[Item 4. Garage doors in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

R337.8.4 Weather stripping. *Exterior garage doors shall be provided with weather stripping to resist the intrusion of embers from entering through gaps between doors and door openings when visible gabs exceed 1/8-inch (3.2 mm). Weather stripping or seals shall be installed on the bottom, sides, and tops of doors to reduce gaps between doors and door openings to 1/8-inch (3.2 mm) or less.*

Notation
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13108.5, 13114, 13143, 13146, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2

[Item 5. Accessory Structures in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

R337.1.3 Application. *New buildings located in any Fire Hazard Severity Zone or any Wildland-Urban Interface Fire Area designated by the enforcing agency constructed after the application date shall comply with the provisions of this chapter.*

Exceptions*:*
1. Buildings of an accessory character classified as a Group U occupancy and not exceeding 120 square feet in floor area, when located at least 30 feet from an applicable building.
2. Buildings of an accessory character classified as Group U occupancy of any size located least 50 feet from an applicable building.
3. Buildings classified as a Group U Agricultural Building, as defined in Section 202 of this code (see also Appendix C – Group U Agricultural Buildings), when located at least 50 feet from an applicable building.
4. Additions to and remodels of buildings originally constructed prior to the applicable application date.

For the purposes of this section and R337.10, applicable building includes all buildings that have residential, commercial, educational, institutional, or similar occupancy type use.

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R337.1.6 Application to accessory buildings and miscellaneous structures. *New accessory buildings and miscellaneous structures specified in section R337.10 shall comply only with the requirements of that section.*

…

R337.10.1 General. *~~Accessory and miscellaneous structures, other than buildings covered by Section 701A.3, which pose a significant exterior exposure hazard to applicable buildings during wildfires shall be constructed to conform to the ignition resistance requirements of this section.~~ Accessory buildings and miscellaneous structures defined in this section that have the potential to pose a significant exterior fire exposure hazard to applicable buildings during wildfires shall be constructed to conform to the requirements of this section.*

R337.10.2 Applicability. *The provisions of this section shall apply to ~~trellises, arbors, patio covers, carports, gazebos and similar structures of an accessory or miscellaneous character.~~ the ~~specified accessory~~ buildings covered by Section R337.1.3 Exception 1. This section shall also apply to specified attached and detached miscellaneous structures that require a building permit, including but not limited to; trellises, arbors, patio covers, carports, gazebos, and similar structures.*

Exceptions*.*
1. Decks shall comply with the requirements of Section R337.9.
2. Awnings and canopies shall comply with the requirements of Section 3105 of the California

Building Code.
3. Exterior wall architectural trim, embellishments, and fascias.
4. Roof or wall top cornice projections and similar assemblies.

***R337.10.3 Where required**. ~~Accessory structures shall comply with the requirements of this section.~~ No requirements shall apply to accessory buildings or miscellaneous structures when located at least 50 feet from an applicable building. Applicable accessory buildings and attached miscellaneous structures, or detached miscellaneous structures that are installed at a distance of less than 3 feet from an applicable building, shall comply with this section. When required by the enforcing agency, detached miscellaneous structures that are installed at a distance of more than 3 feet but less than 50 feet from an applicable building shall comply with the requirements of this section.*

***R337.10.3.1 Accessory building requirements.** ~~Attached accessory structures shall comply with the requirements of this section.~~ Applicable accessory buildings that are less than 120 square feet in floor area, and are located more than 30 feet but less than 50 feet from an applicable building shall be constructed of noncombustible materials or of ignition resistant materials as described in Section R337.4.2.*

***R337.10.3.2 Attached miscellaneous structure requirements.** ~~When required by the enforcing agency, detached accessory structures within 50 feet of an applicable building shall comply with the requirements of this section.~~ Applicable miscellaneous structures that are attached to, or installed at a distance of less than 3 feet from, an applicable building shall be constructed of noncombustible materials or of ignition resistant materials as described in Section R337.4.2.*

***R337.10.3.3 Detached miscellaneous structure requirements.** When required by the enforcing agency, applicable detached miscellaneous structures that are installed at a distance of more than 3 feet but less than 50 feet from, an applicable building shall be constructed of noncombustible materials or of ignition resistant materials as described in Section R337.4.3.*

~~***R337.10.4 Requirements.** When required by the enforcing agency accessory structures shall be constructed of noncombustible or ignition-resistant materials.~~

Notation
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13108.5, 13114, 13143, 13146, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2

[Item 6. Referenced Standards in Wildland-Urban Interface Areas correlation with CBC 7A proposals.]

***R337.3.5.2.1 Fire-retardant-treated wood**. Fire-retardant-treated wood shall be tested in accordance with ASTM D2898 (Method A) ~~D 2898~~, ~~"Standard Practice for Accelerated~~*

~~Weathering of Fire-Retardant Treated Wood for Fire Testing (Method A)"~~ and the requirements of Section 2303.2 of the California Building Code.

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R337.3.7 Standards of quality. *The State Fire Marshal standards for exterior wildfire exposure protection listed below and as referenced in this chapter are located in the California Referenced Standards Code, Part 12 and Chapter ~~35~~44 of this code.*

SFM Standard 12-7A-1, *Exterior Wall Siding and Sheathing. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for a 10-minute duration.*

SFM Standard 12-7A-2, *Exterior Windows. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for an ~~a~~ 8-minute duration.*

SFM Standard 12-7A-3, *Horizontal Projection Underside A fire resistance test standard consisting of a 300 kW intensity direct flame exposure for a 10-minute duration.*

SFM Standard 12-7A- 4, *Decking. A two-part test consisting of a heat release rate (Part A) deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3-minute duration, and a (Part B) sustained deck assembly combustion test consisting of a deck upper surface burning ember exposure with a 12 mph wind for 40 minutes using a 2.2lb (1kg) burning "Class A" size 12"x12"x 2.25" (300 mm x 300 mm x 57 mm) roof test brand.*

SFM Standard 12-7A-4A, *Decking Alternate Method A. A heat release rate deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3-minute duration.*

SFM Standard 12-7A-5, *Ignition-resistant Material. A generic building material surface burning flame spread test standard consisting of an extended 30 minute ASTM E84 or UL 723 test method as is used for fire-retardant-treated wood.*

ASTM D2898 Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing

ASTM D3909/D3909M Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced With Mineral Granules

ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM E2632/E2632M Standard Test Method for Evaluating the Under-Deck Fire Test Response of Deck Materials

ASTM E2707 Standard Test Method for Determining Fire Penetration of Exterior Wall

Assemblies Using a Direct Flame Impingement Exposure

ASTM E2726/E2726M Standard Test Method for Evaluating the Fire-Test-Response of Deck Structures to Burning Brands

ASTM E2886/E2886M Standard Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingement

ASTM E2957 Standard Test Method for Resistance to Wildfire Penetration of Eaves, Soffits and Other Projections

NFPA 257 Standard on Fire Test for Window and Glass Block Assemblies

UL 723 Standard for Test for Surface Burning Characteristics of Building Materials

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R337.4.2 Ignition-resistant materials. *Ignition-resistant materials shall ~~be determined in accordance with~~ comply with one of the following:*
1. The requirements in Section R337.4.3 when tested in accordance with the test procedures set forth in ASTM E84 or UL 723,
2. The test procedures and requirements set forth in SFM Standard 12-7A-5 "Ignition-Resistant Material", or
3. One of the alternative methods in Section R337.4.4. ~~in accordance with this section.~~

R337.4.3 Conditions of acceptance for ignition-resistant material tested in accordance with ASTM E84 or UL 723*. A material shall comply with the conditions of acceptance in 1 and 2 below when the test is continued for an additional 20-minute period, meaning for a total test period of an "extended" 30-minute test period.*
1. The material shall exhibit a flame spread index not exceeding 25 and shall show no evidence of progressive combustion following the extended 30-minute test period.
2. The material shall exhibit a flame front that does not progress more than 10-1/2 feet (3200 mm) beyond the centerline of the burner at any time during the extended 30-minute test period.

~~R337.4.3~~R337.4.4 Alternative methods for determining ignition-resistant material. *Any one of the following shall be accepted as meeting the definition of ignition-resistant material:*
1. Noncombustible material. Material that complies with the definition for noncombustible materials in Section 202.
2. Fire-retardant-treated wood. Fire-retardant-treated wood identified for exterior use that complies with the requirements of Section 2303.2 of the California Building Code.
3. Fire-retardant-treated wood shingles and shakes. Fire-retardant-treated wood shingles and shakes, as defined in Section 1505.6 of the California Building Code and listed by State Fire Marshal for use as "Class B" roof covering, shall be accepted as an ignition-resistant wall covering material when installed over solid sheathing.

…

R337.5.2 Roof coverings. *Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to ~~prevent~~resist the intrusion of flames and embers, be fire stopped with approved materials or have one layer of minimum 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 ~~D 3909~~ installed over the combustible decking.*

R337.5.3 Roof valleys. *Where valley flashing is installed, the flashing shall be not less than 0.019-inch (0.48 mm) No. 26 gage galvanized sheet corrosion-resistant metal installed over not less than one layer of minimum 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 ~~D 3909~~, at least 36-inch-wide (914 mm) running the full length of the valley.*

…

R337.6.2 Requirements. *Ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation openings shall be fully covered with metal wire mesh, vents, other materials or other devices that meet one of the following requirements:*

1. Vents shall be listed to ASTM E2886 and comply with all of the following: ~~Listed vents complying with ASTM E2886 with the following test results:~~
1.1 There shall be no flaming ignition of the cotton material during the Ember Intrusion Test~~The Ember Intrusion Test shall have no flaming ignition of the cotton material~~.
1.2 There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
1.3 The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

2. Vents ~~complying~~ shall comply with all of the following.
2.1 The dimensions of the openings therein shall be a minimum of 1/16-inch (1.6 mm) and shall not exceed 1/8-inch (3.2 mm).
2.2 The materials used shall be noncombustible.

Exception*: Vents located under the roof covering, along the ridge of roofs, with the exposed surface of the vent covered by noncombustible materials shall be permitted to be of combustible materials.*

2.3 The materials used shall be corrosion resistant.

R337.6.3 Ventilation openings on the underside of eaves and cornices. *Vents shall not be installed on the underside of eaves and cornices.*

Exceptions:

1. Vents listed to ASTM E2886 and complying with all of the following: ~~Listed vents complying~~

~~with ASTM E2886~~.
1.1 There shall be no flaming ignition of the cotton material during the Ember Intrusion Test~~The Ember Intrusion Test shall have no flaming ignition of the cotton material~~.
1.2 There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
1.3 The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

2. The enforcing agency ~~may~~ shall be permitted to accept or approve special eave and cornice vents that resist the intrusion of flame and burning embers.

3. Vents complying with the requirements of Section R337.6.2 ~~may~~ shall be permitted to be installed on the underside of eaves and cornices in accordance with either one of the following conditions:
3.1 The attic space being ventilated is fully protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 of the California Building Code or,
3.2 The exterior wall covering and exposed underside of the eave are of noncombustible materials or of ignition-resistant materials, as determined in accordance with SFM Standard 12-7A-5 Ignition-Resistant Material the requirements of Section R337.4.3, and the vent is located more than 12 feet (3.66 m) from the ground or walking surface of a deck, porch, patio or similar surface.

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R337.7.3 Exterior walls. *The exterior wall covering or wall assembly shall comply with one of the following requirements:*
1. Noncombustible material
2. Ignition-resistant material
3. Heavy timber exterior wall assembly
4. Log wall construction assembly
5. Wall assemblies that ~~meet the performance criteria~~ have been tested in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in ASTM E2707 with the conditions of acceptance shown in Section R337.7.3.1
6. Wall assemblies that meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in SFM Standard 12-7A-1.

Exception: *Any of the following shall be deemed to meet the assembly performance criteria and intent of this section:*
1. One layer of $^{5}/_{8}$-inch Type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing
2. The exterior portion of a 1-hour fire resistive exterior wall assembly designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual

R337.7.3.1 Conditions of acceptance when tested in accordance with ASTM E2707. *The ASTM E2707 test shall be conducted on a minimum of three test specimens and the conditions*

of acceptance in 1 and 2 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.
1. Absence of flame penetration through the wall assembly at any time.
2. Absence of evidence of glowing combustion on the interior surface of the assembly at the end of the 70-min test.

~~R337.7.3.1~~R337.7.3.2 Extent of exterior wall covering. *Exterior wall coverings shall extend from the top of the foundation to the roof, and terminate at 2 inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.*

...

R337.7.5 Enclosed roof eaves and roof eave soffits. *The exposed underside of enclosed roof eaves having either a boxed-in roof eave soffit with a horizontal underside, or sloping rafter tails with an exterior covering applied to the underside of the rafter tails, shall be protected by one of the following:*
1. Noncombustible material
2. Ignition-resistant material
3. One layer of $^{5}/_{8}$-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the rafter tails or soffit
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the rafter tails or soffit including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in Section R337.7.10 when tested in accordance with the test procedures set forth in ~~either of the following: 5.1 SFM Standard 12-7A-3; or 5.2~~ASTM E2957
6. Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3

Exceptions: *The following materials do not require protection:*
1. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails
2. Fascia and other architectural trim boards

R337.7.6 Exterior porch ceilings. *The exposed underside of exterior porch ceilings shall be protected by one of the following:*
1. Noncombustible material
2. Ignition-resistant material
3. One layer of $^{5}/_{8}$-inch Type X gypsum sheathing applied behind the exterior covering on the underside of the ceiling
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the ceiling assembly including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. Porch ceiling assemblies with a horizontal underside that meet the performance criteria in

Section R337.7.10 when tested in accordance with the test procedures set forth in ~~either of the following: 5.1 SFM Standard 12-7A-3; or 5.2~~ASTM E2957
6. Porch ceiling assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3

Exception: *Architectural trim boards.*

R337.7.7 Floor projections. *The exposed underside of a cantilevered floor projection where a floor assembly extends over an exterior wall shall be protected by one of the following:*
1. Noncombustible material
2. Ignition-resistant material
3. One layer of $^{5}/_{8}$-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor projection including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor projection assembly that meet the performance criteria in Section R337.7.10 when tested in accordance with the test procedures set forth in ~~either of the following: 5.1 SFM Standard 12-7A-3; or 5.2~~ASTM E2957
6. The underside of a floor projection assembly that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3

Exception: *Architectural trim boards.*

R337.7.8 Underfloor protection. *The underfloor area of elevated or overhanging buildings shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:*
1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor assembly that meets the performance criteria in Section R337.7.10 when tested in accordance with the test procedures set forth in ~~either of the following: 5.1 SFM Standard 12-7A-3; or 5.2~~ASTM E2957
6. The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3

Exception: *Heavy timber structural columns and beams do not require protection.*

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R337.7.10 Conditions of acceptance when tested in accordance with ASTM E2957. *The test shall be conducted on a minimum of three test specimens and the conditions of acceptance*

in 1 through 3 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.
1. Absence of flame penetration of the eaves or horizontal projection assembly at any time.
2. Absence of structural failure of the eaves or horizontal projection subassembly at any time.
3. Absence of sustained combustion of any kind at the conclusion of the 40-minute test.

…

R337.8.2 Exterior glazing. *The following exterior glazing materials and/or assemblies shall comply with this section:*
1. Exterior windows
2. Exterior glazed doors
3. Glazed openings within exterior doors
4. Glazed openings within exterior garage doors
5. Exterior structural glass veneer
6. Vents

…

R337.8.3 Exterior doors*. Exterior doors shall comply with one of the following:*
1. The exterior surface or cladding shall be of noncombustible material
2. The exterior surface or cladding shall be of ignition-resistant material, or
3. The exterior door shall 2. Shall be constructed of solid core wood that complies with the following requirements:
2.1. 3.1 Stiles and rails shall not be less than 13/8 inches thick.
2.2. 3.2 Raised pPanels shall not be less than 1 1/4 inches thick, except for the exterior perimeter of the raised panel that mayshall be permitted to taper to a tongue not less than 3/8 inch thick.
3. Shall 4. The exterior door assembly shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252.
4. Shall 5. The exterior surface or cladding shall be tested to meet the performance requirements of Section R337.7.3.1 when tested in accordance with ASTM E2707.
6. The exterior surface or cladding shall be tested to meet the performance requirements of SFM Standard 12-7A-1.

…

R337.9.3 Decking Surfaces*. The walking surface material of decks, porches, balconies and stairs shall be constructed with one of the following materials:*
1. Ignition-resistant material that Material that complies with the performance requirements of Section R337.9.4 when tested in accordance with both ASTM E2632 and ASTM E2726.
2. Ignition resistant material that complies with the performance requirements of R337.4.3 when tested in accordance with ASTM E84 or UL 723.
3. Material that complies with the performance requirements of both SFM Standard 12-7A-4 and

SFM Standard 12-7A-5.
~~2.~~4. Exterior fire retardant treated wood
~~3.~~5. Noncombustible material
~~4.~~6. Any material that complies with the performance requirements of SFM Standard 12-7A-4A when attached exterior wall covering is also ~~either~~composed noncombustible or ignition-resistant material.

***Exception**: Wall material shall be permitted to be of any material that otherwise complies with this chapter when the decking surface material complies with the performance requirements ASTM E84 with a Class B flame spread index.*

7. Any material that complies with the performance requirements of Section R337.9.5 when tested in accordance with ASTM E2632 and when attached exterior wall covering is also composed of only noncombustible or ignition-resistant materials.

***Exception**: Wall material shall be permitted to be of any material that otherwise complies with this chapter when the decking surface material complies with the performance requirements ASTM E84 with a Class B flame spread index.*

***R337.9.4 Requirements for type of ignition-resistant material in Section R337.9.3, item (1)**. The material shall be tested in accordance with both ASTM E2632 and ASTM E2726 and shall comply with the conditions of acceptance in R337.9.4.1 and R337.9.4.2. The material shall also be tested in accordance with ASTM E84 or UL 723 and comply with the performance requirements of Section R337.4.3.*

***R337.9.4.1 Conditions of acceptance for ASTM E2632**: The ASTM E2632 test shall be conducted on a minimum of three test specimens and the conditions of acceptance in 1 through 3 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.*
1. Peak heat release rate of less than or equal to 25 kW/ft^2 (269 kW/m^2)
2. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-min observation period.
3. Absence of falling particles that are still burning when reaching the burner or floor.

***R337.9.4.2 Conditions of acceptance for ASTM E2726**: The ASTM E2726 test shall be conducted on a minimum of three test specimens and the conditions of acceptance in 1 and 2 below shall be met. If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the conditions of acceptance.*
1. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-min observation period
2. Absence of falling particles that are still burning when reaching the burner or floor.

***R337.9.5 Requirements for type of ignition-resistant material in Section R337.9.3, item (6):** The material shall be tested in accordance with ASTM E2632 and shall comply with the following*

condition of acceptance. The ASTM E2632 test shall be conducted on a minimum of three test specimens and the peak heat release rate shall be less than or equal to 25 kW/ft^2 (269 kW/m^2). If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All of the additional tests shall meet the condition of acceptance.

…

CHAPTER 44
REFERENCED STANDARDS

ASTM ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
E84-~~2013A~~2016	*Standard Test Method for Surface Burning Characteristics of Building Materials…*	*202, 402.6.4.4, 406.7.2, 703.5.2, 720.1, 720.4, 803.1.1, 803.1.4, 803.10, 803.11, 806.7, 1404.12.1, 1407.9, 1407.10.1, 1409.9, 1409.10.1, 1510.6.2, 1510.6.3, 2303.2, 2603.3, 2603.4.1.13, 2606.3.5.4, 2603.7.1, 2603.7.2, 2603.7.3, 2604.2.4, 2606.4, 2612.3, 2614.3, 3105.4*
E2632/E2632M-2013 e1	*Standard Test Method for Evaluating the Under-Deck Fire Test Response of Deck Materials…*	*R337.9.3, R337.9.4, R337.9.4.1, R337.9.5*
E2707-2015	*Standard Test Method for Determining Fire Penetration of Exterior Wall Assemblies Using a Direct Flame Impingement Exposure*	*R337.7.3, R337.7.3.1, R337.8.3*
E2726/E2726-2012a	*Standard Test Method for Evaluating the Fire-Test-Response of Deck Structures to Burning Brands*	*R337.9.3, R337.9.4, R337.9.4.2*
E2886/E2886M-2014	*Standard Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingement*	*R337.6.2, R337.6.3*
E2957-2015	*Standard Test Method for Resistance to Wildfire Penetration of Eaves, Soffits and Other Projections*	*R337.7.5, R337.7.6, R337.7.8, R337.7.10*

Notation

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13108.5, 13114, 13143, 13146, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2

[Item 7. Editorial modifications of regulations for vegetation management in Wildland-Urban Interface Areas.]

R337.1.5 Vegetation management compliance. *Prior to building permit final approval, the property shall be in compliance with the vegetation management requirements prescribed in California Fire Code Section 4906, including California Public Resources Code 4291 or California Government Code Section 51182. Acceptable methods of compliance inspection and documentation shall be determined by the enforcing agency and shall be permitted to ~~may~~ include any of the following:*

1. Local, state or federal fire authority or designee authorized to enforce vegetation management requirements
2. Enforcing agency
3. Third party inspection and certification authorized to enforce vegetation management requirements
4. Property owner certification authorized by the enforcing agency

Notation
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2, Public Education Code 17074.50
Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2

[Item 8. Accessory Dwelling Units.]

R313.2 One- and two-family dwellings automatic fire systems. An automatic residential fire sprinkler system shall be installed in one- and two-family dwellings.

Exceptions:

1. An automatic residential fire sprinkler system shall not be required for *additions* or *alterations* to existing buildings that are not already provided with an automatic residential sprinkler system.
2. *Accessory Dwelling Unit, provided that all of the following are meet:*
    a. *The unit meets the definition of an Accessory Dwelling Unit as defined in the Government Code section 65852.2.*
    b. *The existing primary residence does not have automatic fire sprinklers.*
    c. *The accessory detached dwelling unit does not exceed 1,200 square feet in size.*
    d. *The unit is on the same lot as the primary residence.*

Notation
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13108.5, 13114, 13143, 13146, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2, Government Code 65852.2, 65582.1.

[Item 9. Photovoltaic systems modifications.]

~~R324.6~~ *R324.7* Ground-mounted photovoltaic systems. *No change to text.*

~~R324.6.1~~ *R324.7.1* Fire separation distances. *No change to text.*

R324.6 *Roof access and pathways.* *Roof access, pathways, and setback requirements shall be provided in accordance with Sections R324.6.1 through R324.6.2.1. Access and minimum spacing shall be required to provide emergency access to the roof, to provide pathways to specific areas of the roof, provide for smoke ventilation opportunity areas, and to provide emergency egress from the roof.*

Exceptions:

1. Detached, nonhabitable structures, including but not limited to, detached garages, parking shade structures, carports, solar trelisses, and similar structures shall not be required to provide roof access.
2. Roof access, pathways, and setbacks need not be provided where the fire code official has determined that rooftop operations will not be employed.
3. These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (2:12) or less.

R324.6.1 *Pathways.* *Not less than two minimum 36 in. (914 mm) wide pathways on separate roof planes, from lowest roof edge to ridge, shall be provided on all buildings. At least one pathway shall be provided on the street or driveway side of the roof. For each roof plane with a photovoltaic array, a minimum 36 in. (914 mm) wide pathway from the lowest roof edge to ridge shall be provided on the same roof plane as the photovoltaic array, on an adjacent roof plane, or straddling the same and adjacent roof planes. Pathways shall be over areas capable of supporting fire fighters accessing the roof. Pathways shall be located in areas with minimal obstructions such as vent pipes, conduit, or mechanical equipment.*

R324.6.2 Setback at ridge. *For photovoltaic arrays occupying not more than 33 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge.*

R324.6.2.1 Alternative setback at ridge. *Where an automatic sprinkler system is installed within the dwelling in accordance with NFPA 13D or Section P2904, set backs at ridges shall conform with one of the following:*
1. For photovoltaic arrays occupying not more than 66 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear set back is required on both sides of a horizontal ridge.
2. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, not les s than a 36-inch (914 mm) clear set back is required on both sides of a horizontal ridge.

[Revise as follows:]

~~**R324.7.2.6**~~**R324.7.2 Ground-mounted photovoltaic arrays.** *No change to text.*

~~**R324. 7.2. 7**~~ ***R324.6.3*** **Locations of DC conductors.** *No change to text.*

~~**R324.7 Access and pathways**. Roof access, pathways and spacing requirements shall be provided in accordance with Sections R324.7.1 through R324.7.2.5.~~

> ~~**Exceptions**:~~
> ~~1. Detached, *nonhabitable Group U Structures including, but not limited to,* garages and accessory structures to one and two-family dwellings and townhouses, such as parking shade structures, carports, solar trellises and similar structures.~~
> ~~2. Roof access, pathways and spacing requirements need not be provided where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed.~~

~~**R324.7.1 Roof access points**. Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires or signs.~~

~~**R324.7.2 Solar photovoltaic systems.** Solar photovoltaic systems shall comply with Sections R324.7.2.1 through R324. 7.2. 7.~~

~~**R324.7.2.1 Size Of solar photovoltaic array**. Each photovoltaic array shall be limited to 150 feet by 150 feet (45 720 by 45 720 mm). Multiple arrays shall be separated by a clear access pathway not less than 3 feet (914 mm) in width.~~

~~**R324.7.2.2 Hip roof layouts**. Panels and modules installed on dwellings with hip roof layouts shall be located in a manner that provides a clear access pathway not less than 3 feet (914 111m) in width from the eave to the ridge on each roof slope where panels and modules are located. The access pathway shall be located at a structurally strong location on the building capable of supporting the live load of fire fighters accessing the roof.~~

~~Exception: These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.~~

~~**R324.7.2.3 Single roofs**. Panels and modules installed on dwellings with a single ridge shall be located in a manner that provides two, 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels or modules are located.~~

~~**Exception:** This requirement shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.~~

~~**R324.7.2.4 Roofs with hips and valleys**. Panels and modules installed on dwellings with roof hips or valleys shall not be located less than 18 inches (457 111m) from a hip or valley where panels or modules are to be placed on both sides of a hip or valley. Where panels are to be located on one side only of a hip or valley that is of equal length, the I8-inch (457 mm) clearance does not apply.~~

~~**Exception:** These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.~~

~~**R324.7.2.5 Allowance for smoke ventilation operations**. Panels and modules installed on dwellings shall not be located less than 3 feet (914 mm) below the roof ridge to allow for fire department smoke ventilation operations.~~

~~**Exception:** Where an alternative ventilation method approved by the enforcing agency has been provided or where the enforcing agency has determined that vertical ventilation techniques will not be employed, clearance from the roof ridge is not required.~~

Notation
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13108.5, 13114, 13143, 13146, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2

[Item 10. Energy Storage Systems.]

[Add new definition as follows:]

SECTION R202 DEFINITIONS

…

BATTERY SYSTEM, STATIONARY STORAGE. A rechargeable energy storage system consisting of electrochemical storage batteries, battery chargers, controls, and associated electrical equipment designed to provide electrical power to a building. The system is typically used to provide standby or emergency power, an uninterruptable power supply, load shedding, load sharing or similar capabilities.

…

[Add new text as follows:]

CHAPTER PART R327- STATIONARY STORAGE BATTERY SYSTEMS

R327.1 General. *Stationary storage battery systems, where provided, shall comply with the provisions of this section.*

R327.2 Equipment listings. *Stationary storage battery systems shall be listed and labeled for residential use in accordance with UL 9540.*

Exceptions:

1. *Where approved, repurposed unlisted battery systems from electric vehicles are allowed to be installed outdoors or in detached sheds located a minimum five feet (1524 mm) from exterior walls, property lines and public ways.*
2. *Battery systems that are an integral part of an electric vehicle are allowed provided the installation complies with Section 625.48 of NFPA 70.*
3. *Battery systems less than 1 KWh (3.6 Mega joules).*

R327.3 Installation. *Stationary storage battery systems shall be installed in accordance with the manufacturer's instructions and their listing, if applicable, and shall not be installed within the habitable space of a dwelling unit.*

R327.4 Electrical installation. *Stationary storage battery systems shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction.*

R327.5 Ventilation. *Indoor installations of stationary storage battery systems that include batteries that produce hydrogen or other flammable gases during charging shall be provided with ventilation in accordance with Section M1307.4.*

R327.6 Protection from impact. *Stationary storage battery systems installed in a location subject to vehicle damage shall be protected by approved barriers.*

Notation

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13108.5, 13114, 13143, 13146, 18949.2
Reference(s): Health and Safety Code Sections 13143, 13195, 18949.2